

## § 164.009-13

within at least 0.5 percent of temperatures recorded during a test.

[CGD 74-129, 41 FR 41701, Sept. 23, 1976, as amended by CGD 82-063b, 48 FR 4783, Feb. 3, 1983; CGD 95-072, 60 FR 50467, Sept. 29, 1995; CGD 96-041, 61 FR 50734, Sept. 27, 1996; USCG-2009-0702, 74 FR 49238, Sept. 25, 2009]

### § 164.009-13 Furnace calibration.

A calibration is performed on each new furnace and on each existing furnace as often as necessary to ensure that the furnace is in good working order. In each calibration the energy input to the furnace is adjusted so that the furnace thermocouple gives a steady reading of  $750 \pm 10$  °C. The wall temperature of the furnace tube is then measured by an optical micro-pyrometer at intervals of 10mm on 3 equally spaced vertical axes. The furnace is correctly calibrated if the temperature of the furnace tube wall is between 825 and 875 °C. 50 mm above and below the midline of the wall and if the average wall temperature is approximately 850 °C.

### § 164.009-15 Test procedure.

(a) *General.* Paragraphs (b) through (k) of this section contain the test procedures for each material submitted for approval, except fiberglass and other materials that melt at  $750^\circ \pm 10$  °C. Paragraph (l) of this section contains test procedures for fiberglass and other materials that melt at  $750^\circ \pm 10$  °C.

(b) *Preparation of specimens.* (1) The designated laboratory prepares 5 cylindrical specimens representative of the properties of the sample submitted for testing. The dimensions of each specimen are as follows:

diameter:  $45(+2/-0)$  mm  
height:  $50 \pm 3$  mm  
volume:  $80 \pm 5$  cm<sup>3</sup>

(2) If the height of the sample, except a composite material, is less than 47 mm, the specimens prepared consist of layers of the sample.

(3) If the sample is a composite material and has a height that is not  $50 \pm 3$  mm, the layers of the specimen prepared are proportional in thickness to the layers of the sample.

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(4) The top and bottom faces of each specimen prepared are the faces of the material as manufactured.

(5) If it is not practicable to prepare a specimen by the procedures described in paragraphs (b)(2) through (b)(4) of this section, the test is performed on five specimens of each component of the sample made to the dimensions prescribed in paragraph (b)(1) of this section.

(c) *Conditioning of specimen.* Each specimen is conditioned for at least 20 hours in a ventilated oven maintained at  $60 \pm 5$  °C. and is then cooled to room temperature in a desiccator.

(d) *Weight of specimen.* The weight of each conditioned specimen after cooling is determined before it is tested.

(e) *Placement of specimen in holder.* After a specimen is conditioned and weighed, it is placed in the specimen holder. A specimen that is made of layers of a composite material is held firmly together in the specimen holder.

(f) *Attachment of thermocouples.* After the specimen is placed in the specimen holder, the thermocouples are attached to the specimen as follows: A vertical hole with a diameter of 2 mm and a depth that is half the height of the specimen is made in the center of the top of the specimen. The specimen thermocouple is then inserted into the hole so that its hot junction is at the center of the specimen. The surface thermocouple is put in contact with the surface of the specimen at its mid-height.

(g) *Preparation of the apparatus.* The apparatus is examined to determine whether it is in good working order and to ensure that the equipment is protected against drafts and is not exposed to direct sunlight or artificial illumination. The furnace temperature is stabilized at 750 °C.  $\pm 10$  °C. and kept at that temperature for the duration of the test. The furnace temperature is stabilized when no adjustments are needed in the energy input to the furnace to keep the temperature constant.

(h) *Insertion of specimen.* After the furnace temperature is stabilized for at least 10 minutes, the specimen is inserted into the furnace. The insertion is completed within 5 seconds. The specimen is positioned so that the hot junction of the surface thermocouple is